

Abstract Submitted
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Physical and magnetic properties of $\text{Ba}(\text{Fe}_{1-x}\text{Mn}_x)_2\text{As}_2$ single crystals¹ ALEXANDER THALER, SHENG RAN, ALFRED KRACHER, WARREN STRASZHEIM, JIAQIANG YAN, SERGEY BUD'KO, PAUL CANFIELD, Iowa State University/Ames Lab — Single crystals of $\text{Ba}(\text{Fe}_{1-x}\text{Mn}_x)_2\text{As}_2$, $0 < x < 1$, have been grown and characterized by structural, magnetic and transport measurements. These measurements show that the structural/magnetic phase transition found in pure BaFe_2As_2 at 134 K is suppressed monotonically by Mn doping up to a critical concentration, $x \approx 0.10$. For $x > 0.10$, a similar transition is observed which broadens and trends upward in temperature with increasing doping level. Superconductivity is not observed at any doping level for $T > 1.85\text{K}$. Phase diagrams of temperature versus doping level based on electrical transport and magnetization measurements will be presented and compared to those of the $\text{Ba}(\text{Fe}_{1-x}\text{TM}_x)_2\text{As}_2$ (TM=Cr, Co, Ni, Cu) series.

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Alexander Thaler
Iowa State University/Ames Lab

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